(c) an imaging device configured to acquire at least one image of an examination site on the surface, both of the at least two carriers being viewable in the at least one image, and

(d) an image analysis system that uses code information from the image to interpret experiments on the analytes.

27. The system of claim 26 wherein the set includes three or more distinctively coded carriers.

28. The system of claim 26, wherein each of the at least two carriers has a colored code.

29. The system of claim 28, wherein the colored code includes at least two distinct colored optically identifiable marks.

30. The system of claim 26, wherein the carriers are formed from fiber optic components.

31. The system of claim 26, wherein the carriers include nanocrystals.

32. The system of claim 26, wherein the surface is glass.

33. The system of claim 26, wherein the imaging device acquires a digital image of the at least two carriers.

34. The system of claim 26, wherein the imaging device uses a CCD camera device to acquire the at least one digital image.

35. The system of claim 26, wherein the imaging device includes a microscope.

36. The system of claim 26, wherein the imaging device includes confocal optics structure.

37. The system of claim 26, wherein the analyte comprises nucleic acid.

38. The system of claim 26, wherein the analyte is selected from the group consisting of antibodies, enzymes, hormones, receptors, and inhibitors.

39. The system of claim 26, wherein the analyte comprises a molecular beacon compound.

40. The system of claim 26, wherein the code on each of the at least two carriers includes a distinctive spatial arrangement of optically identifiable marks.

41. The system of claim 26, wherein each optically identifiable mark is selected from a group of N possible colors, where N is greater than one.

42. The system of claim 26, wherein each carrier has an analyte area and a code display area.

43. The system of claim 42, wherein the analyte area and the code area substantially coincide.

44. The system of claim 42, wherein the analyte area and code at least partially overlap with each other.

45. The system of claim 26, wherein the carriers have a shape that is flat or cylindrical.

46. A method of conducting a multiplexed array experiment comprising

(a) providing a set of at least two carriers, each of the at least two carriers having an optically detectable code that distinguishes it from the other carrier, and each of the at least two carriers carrying an analyte that is identifiable by the respective code on the carrier, the at least two carriers being arbitrarily distributed on the surface,

(b) conducting an experiment on the analytes carried by the at least two carriers,

(c) distributing the at least two carriers on a surface,

(d) acquiring at least one image of an examination site on the surface, both of the at least two carriers being viewable in the at least one image, and

(e) using code information from the at least one image to interpret results of the experiment.

47. The method of claim 46, wherein the codes of the at least two carriers are detectable in the at least one image and further comprising

acquiring a second image showing an optically detectable result of the experiment on the analyte.

48. The method of claim 46, wherein the acquiring step includes the step of digitizing the at least one image.

49. The method of claim 46, wherein the acquiring step includes the step of using a CCD camera to generate the at least one image in digital form.

50. The method of claim 46, further comprising the step of analyzing the at least one image including correcting for background non-uniformity and thresholding at a level that separates carriers from background.

51. The method of claim 46, wherein the providing step includes selecting analytes from the group consisting of nucleic acid antibodies, enzymes, hormones, receptors, and inhibitors, and attaching the analytes to carriers in the set.